

REMARKS

Claim 1 has been amended to recite portions of the subject matter previously recited in dependent claims 6 and 7, which have been cancelled. Claims 2 through 5, 8 through 10, and 12 have been amended to improve antecedent basis. Support for new claim 38 is found in the as-filed specification at at least paragraph [0013].

The Office Action mailed March 21, 2006, has been received and reviewed. Claims 1 through 37 are currently pending in the application, of which claims 1 through 13 are currently under consideration. Claims 14 through 37 have been withdrawn from consideration as being drawn to a nonelected species and are cancelled herein without prejudice or disclaimer to the filing of one or more divisional applications on the subject matter thereof. New claim 38 has been added. Claims 1 through 13 stand rejected. Applicants have amended claims 1 through 5, 8 through 10, and 12, added new claim 38, cancelled claims 6 and 7, and respectfully request reconsideration of the application as amended herein.

35 U.S.C. § 102(e) Anticipation Rejections

Anticipation Rejection Based on U.S. Patent No. 6,951,813 to Derderian

Claims 1 through 13 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Derderian (U.S. Patent No. 6,951,813). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Independent claim 1, as amended, recites, in part, “introducing at least one gaseous aluminum compound selected from the group consisting of an alane, an alkylaluminum hydride, an alkylaluminum halide, an alkylaluminum sesquihalide, and an aluminum sesquihalide into a halogen-containing environment.”

Derderian discloses a method of forming a metal layer. Derderian at column 1, lines 27-

28. The metal layer is formed by reacting an aluminum-containing material with titanium tetrachloride ("TiCl₄"). *Id.* at column 2, lines 36-56. The aluminum-containing material is trimethylaluminum or triethylaluminum. *Id.*

Derderian does not expressly or inherently describe each and every element of claim 1 because Derderian does not disclose the element of "introducing at least one gaseous aluminum compound selected from the group consisting of an alane, an alkylaluminum hydride, an alkylaluminum halide, an alkylaluminum sesquihalide, and an aluminum sesquihalide into a halogen-containing environment." Specifically, none of the gaseous aluminum compounds recited in claim 1 is disclosed in Derderian. Rather, Derderian discloses trialkylaluminum compounds, such as trimethylaluminum and triethylaluminum.

Since Derderian does not expressly or inherently describe each and every element of claim 1, the anticipation rejection of claim 1 is improper and should be withdrawn.

Claims 2-5 and 8-13 are allowable, *inter alia*, as depending from an allowable base claim, namely claim 1.

Claim 8 is further allowable because Derderian does not expressly or inherently describe introducing dimethylethylamine alane or trimethylamine alane into the halogen-containing environment. The sections of Derderian relied upon by the Examiner disclose exposing a chemisorbed material to trimethylaluminum or triethylaluminum. However, neither of these compounds is an alane compound as recited in claim 8.

Claim 9 is further allowable because Derderian does not expressly or inherently describe introducing at least one organic aluminum compound selected from the group consisting of dimethyl aluminum hydride, diethyl aluminum hydride, and methyl ethyl aluminum hydride into the halogen-containing environment. The sections of Derderian relied upon by the Examiner disclose exposing a chemisorbed material to trimethylaluminum or triethylaluminum. However, neither of these compounds is a hydride compound as recited in claim 9.

Claim 10 is further allowable because Derderian does not expressly or inherently describe introducing the at least one gaseous aluminum compound into a deposition chamber contaminated with the at least one halogenated material. Instead, the section of Derderian relied upon by the Examiner discloses a semiconductor substrate having TiCl₄ chemisorbed on the

substrate, which is reacted with an aluminum-containing material.

Claim 12 is further allowable because Derderian does not expressly or inherently describe reacting the at least one gaseous aluminum compound with the at least one of NF_3 , SF_6 , C_2F_4 , chlorine, and ClF_3 . Rather, the section of Derderian relied upon by the Examiner discloses reacting an aluminum-containing material with TiCl_4 . Since the Cl in TiCl_4 is in the form of a chloride ion (Cl^-), it is improper for the Examiner to rely on Derderian as disclosing chlorine, which is known in the art to be Cl_2 .

Arguments describing the patentability of new claim 38 over Derderian are also provided for the convenience of the Examiner. Claim 38 is allowable because Derderian does not expressly or inherently describe each and every element of this claim. Specifically, Derderian does not disclose the element of "reacting the at least one gaseous aluminum compound with at least one nonmetal halogenated material to form a gaseous reaction product." Instead, Derderian discloses reacting its aluminum-containing material with TiCl_4 , which is a metal-containing halogenated material.

Since Derderian does not expressly or inherently describe each and every element of claim 38, this claim is allowable.

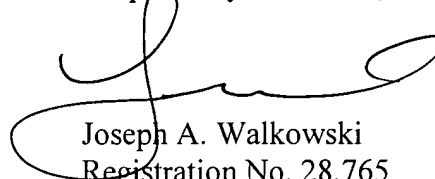
ENTRY OF AMENDMENTS

The amendments to claims 1 through 5, 8 through 10, and 12 and new claim 38 should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add new matter to the application.

CONCLUSION

Claims 1 through 5, 8 through 13, and 38 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



Joseph A. Walkowski
Registration No. 28,765
Attorney for Applicants
TRASKBRITT
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

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JAW/KAH/dlm:slm

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